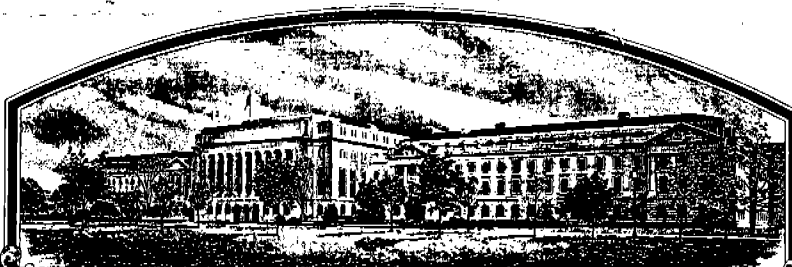


No.

7700050



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:
Iowa Agriculture and Home Economics
Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Coles'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington
this 16th day of March in
the year of our Lord one thousand nine
hundred and seventy-eight

Attest:

Emanuel H. [Signature]
Acting
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

B. B. [Signature]
Secretary of Agriculture

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY	
A73-128	Coles	PV NUMBER	7700050
2. KIND NAME	3. GENUS AND SPECIES NAME	FILING DATE	TIME
Soybean	Glycine max	3-7-77	10:00 A.M.
4. FAMILY NAME (BOTANICAL)	5. DATE OF DETERMINATION	FEE RECEIVED	DATE
Leguminosae	March 1, 1976	\$ 250.00	3-7-77
		\$ 250.00	12-27-77
		\$ 250.00	12-27-77
6. NAME OF APPLICANT(S)	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	8. TELEPHONE AREA CODE AND NUMBER	
Iowa Agriculture and Home Economics Experiment Station	104 Curtiss Iowa State University Ames, IA 50011	515-294-4762	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.)	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION	
State Experiment Station			

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

John P. Mahlstedt
104 Curtiss
Iowa State University
Ames, IA 50011

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☐ 13D. Exhibit D, Additional Description of the Variety.

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed?
(See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations?

☒ YES ☐ NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed?

☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal?

☒ YES ☐ NO

16. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

December 1, 1976
(DATE)

John P. Mahlstedt
(SIGNATURE OF APPLICANT)

1

(DATE)

(SIGNATURE OF APPLICANT)

EXHIBIT A

Origin and Breeding History of the Variety

1. Coles originated in Iowa from the cross Hark x [Provar x (Disoy x Magna)]. This cross was made in 1966. Winter nursery facilities at the Puerto Rico Agricultural Experiment Station were used for inbreeding by single seed descent from F2 to F5. The breeding history and description of the parents may be found in Crop Science 7:403 "Registration of Hark soybeans", "Registration of Disoy soybeans", and "Registration of Magna soybeans", and Crop Science 10:728 "Registration of Provar soybeans."
2. Coles was selected as an F5 plant the winter of 1970. Yield tests were made at one location in 1972 and 1973. Coles was tested in the Uniform Soybean tests Northern States in 1974 to 1976 and in the Iowa Variety Test in 1975 and 1976. Seed of Coles was increased in Iowa in 1975 and distributed to foundation seed organizations in states participating in its release. Foundation seed was produced in 1976. Foundation seed will be distributed to certified seed growers for planting in 1977.
3. Coles has 99% yellow hila and 1% buff hila. Purification of Coles is in progress to remove seeds with buff hilum.
4. Coles has shown evidence of stability. The attached data indicate a stable variety for the past three years.

77-50

EXHIBIT B

Novelty Statement

Novelty is based on the unique combination of the following characters:

Coles most closely resembles Hark, except it has ~~1) brown pods,~~^{R/S}
2) greater resistance to iron chlorosis, 3) a larger seed size,
and 4) is higher yielding.

EXHIBIT B

Variety	Yield	Maturity	Lodging	Height	Seed quality	Seed size	Chlo- rosis	Seed Content	
	bu/a	date	score	inches	score ^b	g/100	score ^c	Protein %	Oil %

1974 Northern States Uniform Preliminary Soybean Tests (12 locations)

Coles	37.8	9/25	1.9	33	1.8	17.3	2	40.2	19.4
Hark	36.2	9/26	1.4	32	1.6	15.4	5	41.4	19.6

1975 Northern States Uniform Soybean Tests (17 locations)

Coles	44.2	9/19	2.0	35	1.5	18.2	3	41.4	20.8
Hark	40.6	9/18	1.6	31	1.6	15.9	5	41.5	21.5

1976 Iowa Uniform Soybean Tests (2 locations)

Coles	46.6	9/11	1.8	38	1.3	16.8	3		
Hark	45.3	9/9	1.6	35	1.1	15.2	5		

1975 Iowa Variety Test (2 locations)

Coles	48.3	9/12	2.5	35		20.6	3		
Hark	46.3	9/12	2.1	35		18.2	5		

1976 Iowa Variety Test (3 locations)

Coles	45.0	9/12	2.1	38		17.6	3		
Hark	40.5	9/7	1.6	35		16.1	5		

^a Scores range from 1 (plant erect) to 5 (plant prostrate)

^b Scores range from 1 (very good) to 5 (very poor)

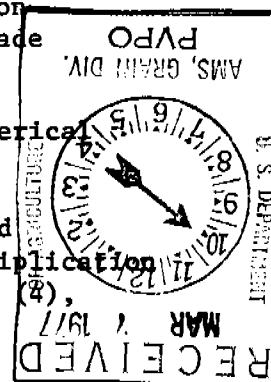
^c Scores range from 1 (no chlorosis) to 5 (severe chlorosis)

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and \$250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, National Agricultural Library, Beltsville, Maryland 20705. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give (1), the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and evidence of stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as; plant habit, plant color, disease resistance, etc.
- 14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of Practice.)



OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (GLYCINE MAX)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) Iowa Agriculture and Home Economics Experiment Station ADDRESS (Street and No., or R.F.D. No.; City, State, and ZIP Code) 104 Curtiss Iowa State University Ames, IA 50011	FOR OFFICIAL USE ONLY PVPO NUMBER 7700050 VARIETY NAME OR TEMPORARY DESIGNATION COWES
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Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. SEED SHAPE:

<input type="checkbox"/> 2	1 = SPHERICAL	2 = SPHERICAL FLATTENED	3 = ELONGATE	4 = OTHER (Specify)
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2. SEED COAT COLOR:

<input type="checkbox"/> 1	1 = YELLOW	2 = GREEN	3 = BROWN	4 = BLACK	SHADE: <input type="checkbox"/> 2	1 = LIGHT	2 = MEDIUM	3 = DARK
	5 = OTHER (Specify)							

3. SEED COAT LUSTER:

<input type="checkbox"/> 1	1 = DULL	2 = SHINY
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4. SEED SIZE

<input type="checkbox"/> 1	<input type="checkbox"/> 8	GRAMS PER 100 SEEDS
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5. HILUM COLOR:

<input type="checkbox"/> 2	1 = BUFF	2 = YELLOW	3 = BROWN	4 = GRAY	5 = IMPERFECT BLACK	SHADE: <input type="checkbox"/> 2	1 = LIGHT	2 = MEDIUM	3 = DARK
	6 = BLACK 7 = OTHER (Specify) 99% Yellow 1% Buff offtype								

6. COTYLEDON COLOR:

<input type="checkbox"/> 1	1 = YELLOW	2 = GREEN
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7. LEAFLET SIZE (See Reverse):

<input type="checkbox"/> 2	1 = SMALL	2 = MEDIUM	3 = LARGE
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8. LEAFLET SHAPE:

<input type="checkbox"/> 1	1 = OVATE	2 = OBLONG	3 = LANCEOLATE	4 = ELLIPTICAL	5 = OTHER (Specify)
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9. LEAF COLOR (See reverse):

<input type="checkbox"/> 2	1 = LIGHT GREEN	2 = MEDIUM GREEN	3 = DARK GREEN
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10. FLOWER COLOR:

<input type="checkbox"/> 2	1 = WHITE	2 = PURPLE	3 = OTHER (Specify)
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11. POD COLOR:

<input type="checkbox"/> 2	1 = TAN	2 = BROWN	3 = BLACK
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12. POD SET:

<input type="checkbox"/> 1	1 = SCATTERED	2 = CONCENTRATED
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13. PLANT PUBESCENCE COLOR:

<input type="checkbox"/> 1	1 = GRAY	2 = BROWN	3 = OTHER (Specify)
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SHADE:

<input type="checkbox"/> 2	1 = LIGHT	2 = MEDIUM	3 = DARK
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14. PLANT TYPES (See Reverse):

<input type="checkbox"/> 1	1 = SLENDER	2 = BUSHY	3 = INTERMEDIATE
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15. PLANT HABIT:

<input type="checkbox"/> 2	1 = DETERMINATE	2 = INDETERMINATE	3 = OTHER (Specify)
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16. HYPOCOTYL COLOR:

<input type="checkbox"/> 2	1 = GREEN	2 = PURPLE
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17. SEED PROTEIN:

<input type="checkbox"/> 2	1 = A	2 = B
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18. NUMBER OF DAYS TO FLOWERING

(Place a zero in first box (e.g. 0 9) when days are 9 or less.)

<input type="checkbox"/> 4	<input type="checkbox"/> 2
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19. MATURITY GROUP:

<input type="checkbox"/> 3	1 = 00	2 = 0	3 = I	4 = II	5 = III
	6 = IV	7 = V	8 = VI	9 = VII	10 = VIII

After emergence 20. SIZE OF 10 DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT (Growth Chamber) AT 25° C. (Place a zero in first box (e.g. 0 2) when size is 9 mm. or less.)

<input type="checkbox"/> 2	<input type="checkbox"/> 4	<input type="checkbox"/> 2	MM. LENGTH OF SEEDLING
----------------------------	----------------------------	----------------------------	------------------------

<input type="checkbox"/> 1	<input type="checkbox"/> 8	MM. LENGTH OF COTYLEDON
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<input type="checkbox"/> 1	<input type="checkbox"/> 0	MM. WIDTH OF COTYLEDON
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21. DISEASE: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input type="checkbox"/> 1 BACTERIAL PUSTULE	<input type="checkbox"/> 0 SOYBEAN CYST	<input type="checkbox"/> 1 DOWNY MILDEW	<input type="checkbox"/> 1 PURPLE STAIN	<input type="checkbox"/> 1 POD AND STEM BLIGHT	<input type="checkbox"/> 0 ROOT KNOT
<input type="checkbox"/> 1 FROGEYE	<input type="checkbox"/> 0 STEM CANKER	<input type="checkbox"/> 1 PHYTO-PHTHORA	<input type="checkbox"/> 1 BROWN STEM ROT	<input type="checkbox"/> 0 TARGET SPOT	<input type="checkbox"/> 1 BROWN SPOT
<input type="checkbox"/> 0 BUD BLIGHT	<input type="checkbox"/> 0 WILDFIRE	<input type="checkbox"/> 0 RHIZOCTONIA ROT	<input type="checkbox"/> 1 OTHER (Specify) Bacterial blight		

'COLES'

7700050

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant shape	Hark	Petiole angle	Hark
Leaf shape	Hark	Seed size	Amsoy 71
Leaf color	Hark	Seed shape	Hark
Leaf surface	Hark	Seedling pigmentation	Hark

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY:

VARIETY	NO. OF DAYS TO MATURITY	LODGING SCORE	PLANT HEIGHT inches	LEAF SIZE cm		CONTENT		AVERAGE NO. OF PODS PER PLANT	IODINE NO.
				Width	Length	Protein	Oil		
Submitted Coles	120	2.0	35	6	10	41.4	20.8%	29	-
Name of similar variety Hark	119	1.6	31	5	10	41.5	21.5	32	-

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

1. Scott, Walter O. and Samuel R. Aldrich, 1970, Modern Soybean Production, The Farmer Quarterly.
2. Norman, A. G., 1963, The Soybean: Genetics, Breeding, Physiology, Nutrition, Management.
3. McKie, J. W., and K. L. Anderson, 1970, The Soybean Book.

LEAF COLOR: Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following Soybean varieties may be used as a guide to identify the colors listed on the form.

COLOR	VARIETY
Light Green	"Ada"
Medium Green	"Wilkin"
Dark Green	"Swift"

LEAF SIZE: The following varieties may be used as a guide to identify the relative size leaves.

SIZE	VARIETY
Small	"Amsoy"
Medium	"Bonus"
Large	"Anoka"

PLANT TYPE: The following varieties may be used as a guide to identify the plant type.

TYPE	VARIETY
Slender	"Vansoy"
Intermediate	"Wirth"
Bushy	"Adelphia"